Commonwealth of Kentucky
Division for Air Quality

PERMIT STATEMENT OF BASIS

TITLE V DRAFT/PROPOSED NO. V-03-014
KENTUCKY ENERGY PROJECT, LLC
308 MAIN STREET, KY. 41240
APRIL 23, 2003
BEN MARKIN, REVIEWER
PLANT I.D. # 021-115-00051
APPLICATION LOG # 54822

SOURCE DESCRIPTION:

Kentucky Energy Project, LLC proposes to construct and operate an electric generating and a used oil facility in Paintsville, Kentucky. The power plant will consist of one 85 megawatt (MW) General Electric (GE) frame 7EA combustion turbine equipped with a heat recovery steam generator (HRSG), and one steam turbine. The supporting unit for the turbine include cooling towers, storage tanks for water and backup No. 2 fuel oil, an emergency diesel generator, and an emergency diesel fire pump. Waste heat from the combustion turbine exhaust will be recovered and converted to steam by the HRSG. The steam will be delivered to be used by the oil recycling plant for heating and to the steam turbine to produce additional power- thus combined-cycle production. A selective catalytic reduction (SCR) system and an oxidation (thermal oxidizer) catalyst will be installed within the HRSG to control NOx and CO emissions, respectively. The thermal oxidizer provides both heat for the process and emissions control, with a destruction efficiency rated at 99.96 percent. The No.2 fuel oil for the power plant will be supplied by the onsite used oil recycling plant, which is capable of processing up to 7,000 gallons per hour of used oil, through this one-step process of thermal cracking and distillation. The thermal cracking will yield the No. 2 fuel with a yield of 70-90 percent feedstock, of the No. 5 fuel oil and light ends products, primarily naphtha, of boiling point less than 200^{o}F. The three (No.2, No.5 and light ends) are sent to storage tanks residing on the tank farm. The tank farm consist of

1. Four (4) 250,000 gallon No.2 fuel oil storage tanks
2. One (1) 170,000 gallon No.2 fuel oil storage
3. One (1) 50,000 gallon naphtha storage tank
4. Six (6) 250, 000 gallon used oil storage tanks
5. One (1) 25,000 gallon No. 5 oil storage tank

Applicable Regulations

- State Regulation 401 KAR 51:060, NO_X requirements for large utility and industrial boilers
- State Regulation 401 KAR 51:090, Banking and trading NO_X allowances
- State Regulation 401 KAR 52:060, Acid Rain Permits
- State Regulation 401 KAR 52:020, Title V Permits
- State Regulation 401 KAR 59:010, New Process Operations
- State Regulation 401 KAR 59:015, New indirect Heat Exchangers
- State Regulation 401 KAR 59:050, New Storage Vessels for Petroleum Liquids
- State Regulation 401 KAR 60:005, 40 C.F.R Part 60, Subparts A and GG, Standards of performance for new stationary sources

- State Regulation 401 KAR 60:005, 40 C.F.R Part 60, Subparts Dc, Standards of performance for new stationary sources
- State Regulation 401 KAR 60:005, 40 CFR 60, Subpart Kb, Standards of Performance for Volatile Organic Liquids Storage
- State Regulation 401 KAR 63:020, Potentially hazardous matter or toxic substances

Non-applicable Regulations

- 40 C.F.R Subpart NNN does not apply because the products made in the cracking/distillation unit cannot be sold or used as any of the chemicals listed under 40 C.F.R. 60.667.
- 401 KAR 51:017, Prevention of significant deterioration of air quality, does not apply because the conditions of this permit limit the potential to emit of the stationary source to less than 100 tons per year per pollutant (Synthetic Minor).

COMMENTS:
Emission factors for this source were taken from AP-42 where applicable. Source test data for other pollutants were compiled from testing a similar facility located in Charlestown, South Carolina, which is operated by Green Oasis Environmental, Inc. The tests were conducted in June of 1997 by ERM Southeast, Inc.

EMISSION AND OPERATING CAPS DESCRIPTION:

The permit and source will be a synthetic minor because control actual and potential emissions will be less than greater than 100 tons per year. The permittee has agreed to a source-wide emissions cap of 95 tons per year for oxides of nitrogen, 95 tons per year for carbon monoxides, and 95 tons per year of sulfur dioxides to preclude Regulation 401 KAR 51:017, Prevention of significant deterioration of air quality (PSD) for a combustion turbine and oil recycling plant based on any 12 consecutive months emissions. The permittee will assure compliance for each pollutant with use of permitted parametric monitoring techniques. However, if the permitted emission limit cap is exceeded, (and still below 100 ton per year) continuous emission monitors (CEMs) shall be installed and used. In addition, there will be weekly monitoring of the hours of operation of the combustion turbine and the oil recycling plant. Pursuant to 40 CFR 60.333, the permittee shall not cause or discharge into the atmosphere any gases which contain sulfur dioxide in excess of 0.015 percent by volume at 15 percent oxygen on a dry basis, or not burn any fuel which contains sulfur in excess of 0.8 percent by weight.

Hazardous air pollutant (HAP) emissions are estimated to be less than 10 tons/year of any single HAP, and less than 25 tons/year of any combination of HAPs given the limitations necessary to maintain the emissions caps for nitrogen oxides and carbon monoxide. The permittee shall assure that HAP emissions do not exceed Title V thresholds by tracking and calculating the HAP emission totals. For the acid rain permit, the number of allowances allocated to Phase II affected units by the U.S. EPA may change under 40 CFR Part 73. In addition, the number of allowances actually held by an affected source in a unit account may differ from the number allocated by U. S. EPA. Neither of the aforementioned conditions necessitates a revision to the unit SO_2 allowance allocations identified in this permit (See 40 CFR 72.84).

COMPLIANCE MONITORING:

The facility is required to monitor NO_X and SO_2 emissions in accordance with the Acid Rain Program. The NO_X emissions must be recorded in accordance with the NO_X Budget Trading Program. To meet

these requirements the facility will: (a) install, calibrate, and operate a NO_X continuous emissions monitoring system (CEMs) on the combustion turbine stack; and (b) install, calibrate, and operate a procedure in accordance with acid rain requirements to measure the emissions of SO_2 from the combustion turbine.

CO will also be monitored at the facility. A CEMS will be installed, calibrated, and operated to monitor the CO emissions from the stack in accordance with 40 CFR Part 60.

The facility will keep records showing the dimensions and capacity of the storage vessels in accordance with 40 CFR 60.116b.

The facility will comply with the monitoring, testing, record keeping, and reporting requirements under 40 CFR Subparts A and GG.

CONTROL DEVICE REQUIREMENT:

Pursuant to 401 KAR 50:055, Section 2(5), at all times, including periods of startup, shutdown and malfunction, owners and operators shall, to the extent practicable, maintain and operate any affected facility including associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Division which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source.

ACID RAIN REQUIREMENTS:

The Phase II Permit Application is a part of the Acid Rain permit and the source must comply with the standard requirements and special provisions set forth in the Phase II Application. For the Acid Rain Permit, accordance with KRS 224.10-100 and Titles IV and V of the Clean Air Act, the Kentucky Natural Resources and Environmental Protection Cabinet, Division for Air Quality issues this permit pursuant to Regulations 401 KAR 50:020, Permits, 401 KAR 50:072, Acid Rain Permit, and Federal Regulation 40 CFR Part 76.

CREDIBLE EVIDENCE:

This permit contains provisions that require that specific test methods, monitoring or recordkeeping be used as a demonstration of compliance with permit limits. On February 24, 1997, the U.S. EPA promulgated revisions to the following federal regulations: 40 CFR Part 51, Sec. 51.212; 40 CFR Part 52, Sec. 52.12; 40 CFR Part 52, Sec. 52.30; 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12, that allow the use of credible evidence to establish compliance with applicable requirements. At the issuance of this permit, Kentucky has not incorporated these provisions in its air quality regulations.